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QUARTERLY TECHNICAL REPORT NO. 20,  
JANUARY 1, 1973- MARCH 31, 1973

R. J. Rummel

Hawaii University

Prepared for:

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Advanced Research Projects Agency

March 1973

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# THE DIMENSIONALITY OF NATIONS PROJECT

## RESEARCH REPORT

THE DIMENSIONALITY OF NATIONS PROJECT

QUARTERLY TECHNICAL REPORT NO. 20

JANUARY 1, 1973 - MARCH 31, 1973

DEPARTMENT OF POLITICAL SCIENCE

UNIVERSITY OF HAWAII

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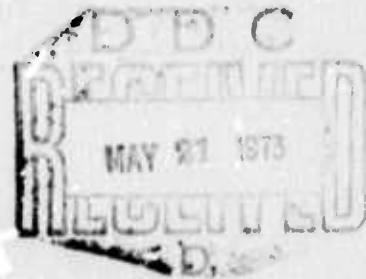
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THE DIMENSIONALITY OF NATIONS PROJECT  
Department of Political Science  
University of Hawaii

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13. ABSTRACT

During this quarter, a test of Field Theory Model II was completed with a canonical regression analysis of the factor scores of the Attribute and Behavioral space data matrices. Data transformation jobs were initiated during the period.

The initial data collection for the Asian Subsystem was also completed during the quarter.

The principal investigator and Director of DON, Dr. R. J. Rummel, has completed three more chapters of Forces of Man, Conflict and War, the volumes which will integrate the output of ten years of research performed by the DON Project.

KEY WORDS	LINK A		LINK B		LINK C	
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Quarterly Technical Report						

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INTRODUCTION

This twentieth quarterly report is divided into seven sections. The first describes the analyses initiated and completed during the quarter; the results of special significance are highlighted. Methodological problems faced during the analyses along with any computer programs that have been written or revised during the quarter are discussed in the second section. In this and the previous section, technical terms and discussions are avoided where possible. The third section describes the data collections begun and completed during the quarter. Current personnel, personnel commitments made and consultation are noted in the fourth section. Project activities are discussed in the fifth section and the sixth section covers project publications, research reports, and monographs in preparation and completed. The final section delineates changes in the DON budget, status of subcontracts, and expenditures to date.

I. ANALYSES

The major analyses completed or initiated during this quarter are as follows:

1. Field Theory Test. With factor scores generated from component factor analyses of A- and B-space data matrices, a canonical regression analysis was performed to test Fummel's Field Theory Model II. The tests were performed for each of the fourteen selected actor nations: Brazil, Burma, China, Cuba, Egypt, India, Indonesia, Israel, Jordan, Netherlands, Poland, Soviet Union, United Kingdom, and United States of America. For the canonical analysis, ten factors each of A- and B-space were included. A preliminary interpretation of the results revealed that there are clearly patterned relations between a nation's behavior and its attribute distances from others, which were predicted by the theory. A full blown interpretation will be carried out during the coming quarter.

2. Field Theory Test with Transformed Data and Image Factor Analysis. As reported earlier (Quarterly Technical Report No. 19, p. 1), we decided that the data should be transformed (logarithm base 10) to diminish the effect of extreme values for certain variables and that the common factor model (Image Factor Analysis) should be used instead of the component factor model, due to recent developments in Field Theory.

During this quarter, data transformation was initiated for the original data with a newly developed program (see II). Several pretests of the image factor analysis program were also performed with raw data to gauge the effects of the factor model. During the coming quarter, Field Theory Model II will be tested with factor scores generated from image factor analysis using transformed data.



## II. METHODOLOGY AND COMPUTER PROGRAMS

A new logarithm transformation computer program is being developed to enable transformations (see I). An outside consultant was hired for that purpose. The program will do the following jobs: 1) scan the whole data matrix to find the smallest value in each variable, 2) add the absolute value of the smallest value to all values in the variable, 3) add 1, 4) then, calculate logarithm base 10 of the resulting value. The program is now completed and test-runs are being conducted.

For image factor analysis, the current MODULAR FACTOR ANALYSIS PACKAGE is being modified. The modification job will be completed in the early part of the coming quarter.

## III. DATA

During this quarter, initial data collection jobs for the "Asian Subsystem" project, which is a part of DON's phase III tasks, were completed. In the coming quarter, the data will be rechecked according to DON's data collection procedures. This data job includes collection of data for 40 behavioral variables for a total of 381 Asian dyads for five time points; i.e., a total of 76,200 figures should be generated.

Also completed during the quarter were the two data books which list all original data of both A- and B-space data. Research Report No. 65, "Attributes of Nations: Data and Codes 1950 - 1965" includes the data for A-space, and Research Report No. 67, "Behaviors of Nations: Data and Codes (Selected Sample) 1950 - 1965," the data for B-space.

## IV. PERSONNEL

### 4.1 Project Director

During this quarter, the principal investigator and Director of DON, Dr. R. J. Rummel, has continued writing Forces of Man, Conflict and War, the volumes which will integrate the output of ten years research performed by the DON Project (see Quarterly Technical Report No. 19, p. 2).

In the past three months Dr. Rummel has completed the following three more chapters.

### Ch. 3 The Fields of Man

- 3.1 The Socio-Cultural Field
- 3.2 The Ecological Field
- 3.3 The Biological Field
- 3.4 Anthropic Space

- Ch. 4 Social Behavior Space
  - 4.1 Person Perception
  - 4.2 The Behavioral Occasion
  - 4.3 Social Behavior

- Ch. 5 Fields of Nature and Man
  - 5.1 Fields of Nature
  - 5.2 Fields of Man
  - 5.3 In Summary

#### 4.2 Assistant Director

Dr. Sang-Woo Rhee, Assistant Director of DON, has mainly engaged in analyses jobs with regard to Field Theory Test.

During this quarter, Dr. Rhee attended the 25th Annual Meeting of the Association for Asian Studies, held at Chicago (March 30 - April 1) where he delivered his paper "Themes of North Korea's Unification Messages: A Study on Pattern Shifts, 1948 - 1968."

#### 4.3 Research Assistants

During this quarter, three research assistants have worked for the project: Chang-Yoon Choi, John McIlroy, and George Omen. Mr. Edward Schwerin left the Project on December 31, 1972 to continue his own study.

Mr. George Omen, who is currently the Project data archivist, mainly worked on data jobs and carried out various data analyses.

Mr. Peter Sybinsky, a graduate student majoring in International Relations, volunteered to work for DON. Mr. Sybinsky carried out the canonical regression analysis.

#### 4.4 Other Staff Members

During this quarter, Miss Karen Iao has worked for DON as Administrative Assistant, and Mrs. Grace Rummel, as Technical Editor.

Six student helpers were employed by DON during this quarter. Mr. Mark Jewel has worked on the data collection job for the "Asian Subsystem" with the help of Mr. Kenneth Howe and Mr. Daniel McDonnell. Misses Jocelyn Lee, Valerie Nishida, and Alma Watanabe have mainly helped the Administrative Assistant during the period.



## V. DON ACTIVITIES

### 5.1 DON Staff Meetings

During this quarter, staff meetings were held only when necessity called for them. A meeting was called to discuss the drafts of Chapters 2, 3, and 4 of Forces of Man, Conflict and War (March 9, 1973).

## VI. PUBLICATIONS AND REPORTS

### 6.1 Research Reports

No. 64 Rhee, Sang-Woo, "China's Cooperation, Conflict and Interaction Behavior; Viewed from Rummel's Field Theoretic Perspective," January 1973.

No. 65 Rhee, Sang-Woo, George Omen, R. J. Rummel, "Attributes of Nations: Data and Codes 1950 - 1965," February 1973.

No. 66 Rhee, Sang-Woo, "Themes of North Korea's Unification Messages: A Study on Pattern Shifts, 1948-1968," February 1973.

## VII. BUDGET

### 7.1 Fiscal Status

Project expenditures are currently in line with the total available to the project beginning on September 1, 1972. We anticipate fully expending these funds by the end of August, 1973.

#### 7.1.1 Amount Funded

The maximum amount available for reimbursement is \$871,846.00.

#### 7.1.2 Estimate Expenditures and Commitments

Total Expenditures to date (09-01-67 to 03-31-73): \$815,734.87

Total Estimated Expenditures (09-01-67 through  
08-31-73) \$871,846.00

#### 7.1.3 Estimate Funds Required: None.